

C. Collector Streets: These streets serve as a link between local streets and the arterial system. Collectors provide both access and traffic circulation within residential, commercial, and industrial areas. Moderate to low traffic volumes are characteristic of these streets.

D. Local Streets: These are composed of all lower order facilities that essentially serve as a conduit between abutting properties and higher order streets. Local streets provide the lowest level of mobility and generally exhibit the lowest traffic volumes.

URBAN AREA STREET SYSTEM

The long range program for improving the urban area street system is detailed below. This effort involves numerous projects and studies taking many years and costing millions of dollars to complete. Close planning and coordination among various Federal, State and local government agencies and departments will be needed. The planned future urban area street system is presented within the following elements:

- Federal and State Improvements
- South and East Beltway
- Antelope Valley Roadway Project
- “Two Plus Center Turn Lane” Program
- Additional Urban Area System Improvements
- Proposed Studies
- Highway 2 Corridor Preservation
- Right of Way Considerations

FEDERAL AND STATE IMPROVEMENTS

During the planning period, improvements are planned for Interstate 80 and many of the existing Nebraska State Highways in Lincoln and Lancaster County. These improvements can generally be categorized as the widening of roadways or construction of interchanges. All of the projects listed below are considered to have funds committed to their construction during the planning period:

Interstate Hwy 80	6 lanes
US-34, East, 84 th Street to county line	4 lanes + turn lanes
US-34, West, city limits west to county line	4 lanes + turn lanes
US-6, West, city limits west to Emerald	4 lanes + turn lanes
US-6 (Sun Valley Blvd.), “O” Street to Cornhusker Hwy.	4 lanes + turn lanes
West “O” St., N.W. 48 th St. to N.W. 56 th St.	4 lanes + turn lanes
US-77 and West Capital Parkway Interchange	Interchange
US-77 and Warlick Blvd. Interchange	Interchange

The Interstate 80 project is part of the Nebraska Department of Roads’ intent to ultimately widen this facility to six lanes from Omaha on the east to Grand Island on the west. This widening will include reconstructing several interchanges and overpasses as the Interstate passes through Lancaster County. This project could also involve the relocation of certain interchanges and the possible elimination of existing overpasses.

The Nebraska Department of Roads is presently studying portions of State Highway 77 as it passes through Lincoln. This study will give consideration to upgrading the facility to freeway status from its present classification as an expressway. This upgrade would require eliminating existing at-grade intersections. These intersections could be replaced with interchanges, overpasses or underpasses, or the road connection could be eliminated all together and no crossing provided.

SOUTH AND EAST BELTWAYS

The South and East Beltways are essential components of a regional transportation network. They will aid in moving car and truck traffic around and through congested urban areas, thus reducing travel delays and improving traffic

flows across the entire street system. The next step in their implementation involves protecting the beltway corridors, acquisition the right-of-way, and obtaining funding.

In addition to their four lanes of freeway, the beltway corridors are assumed to be multi-use areas incorporating the following features:

- a. trails and pedestrian facilities
- b. open spaces, including linear greenways, parks and natural areas
- c. utility corridors
- d. potential routes for alternative transportation modes

Their ultimate development as city-county multi-use corridors will require significant advance planning and coordination among many agencies. The planning and financing of the roadway and the other activities should be done concurrently. Maintaining open space along the corridors is in keeping with the Comprehensive Plan's Vision and serves as one way to address the impact the beltways will have on the natural environment. The planning for these corridors should also consider their future role in bringing about the Salt Valley Heritage Greenway.

A beltway corridor of approximately 1,320 feet in width is assumed in this Plan. While this area is more than is ultimately needed (or obtained) for the project, this planning assumption will allow greater flexibility in the facility's final design. This will also allow the multi-use corridors outside of the roadway to vary in width, with the final design of the roadway corridor being approximately 300 feet wide. During the design phase, every effort should be made to reduce the impact on adjacent residences and other sensitive uses where and whenever possible.

Of the two beltway alignments, the South Beltway must be built first, with construction coming within the first half of the planning period. The South Beltway is considered a committed City project. Planning and programming for the East Beltway should continue, with studies completed in the Stevens Creek Basin to address preservation of salient natural, cultural, and historic features, and the sensitive integration of these features into the basin. In the interim, corridor protection efforts for the South and East Beltway multi-use corridors should be initiated. Plans and funding for the open space, trails, and other components of the South and East Beltway multi-use corridors should be established as soon as possible.

ANTELOPE VALLEY ROADWAY PROJECT

The Antelope Valley Roadway Project involves a partnership of the City of Lincoln, the Lower Platte South Natural Resource District and the University of Nebraska-Lincoln. Initiated in the early 1990's, this effort was designed to address the concerns of traffic/pedestrian circulation, community revitalization needs, and storm water drainage and flood control associated with a portion of the Antelope Creek drainage basin.

The Antelope Valley Roadway project envisions a multi-lane (four to six lanes) boulevard with dual left turn lanes and a landscaped center median. The first phase of implementation will include community revitalization elements, construction of the north/south roadway from approximately N. 14th Street and Salt Creek south to K Street, construction of the east-west diagonal road from the 9th/10th Street connection to a point east of 27th Street, and construction of the storm water and flood control elements. The overpass for the Burlington Northern-Santa Fe railroad tracks will be constructed to carry six lanes of through traffic, dual left turns and one right turn lane. Phase 1 of the "Draft Single Package" is considered a committed City project.

Implementation of the Antelope Valley Roadway project will be conducted through the Joint Antelope Valley Authority (JAVA), which includes representatives from all three of the study's original participants listed above.

Proposed Beltway Interchange Locations

South Beltway

- South Beltway and US-77
- 30th Street
- 68th Street
- South 84th Street
- Nebraska Hwy 2

East Beltway

- Interstate 80
- Fletcher Avenue
- Adams Street
- "O" Street
- Pioneers Boulevard
- Pine Lake Road
- Nebraska Hwy 2

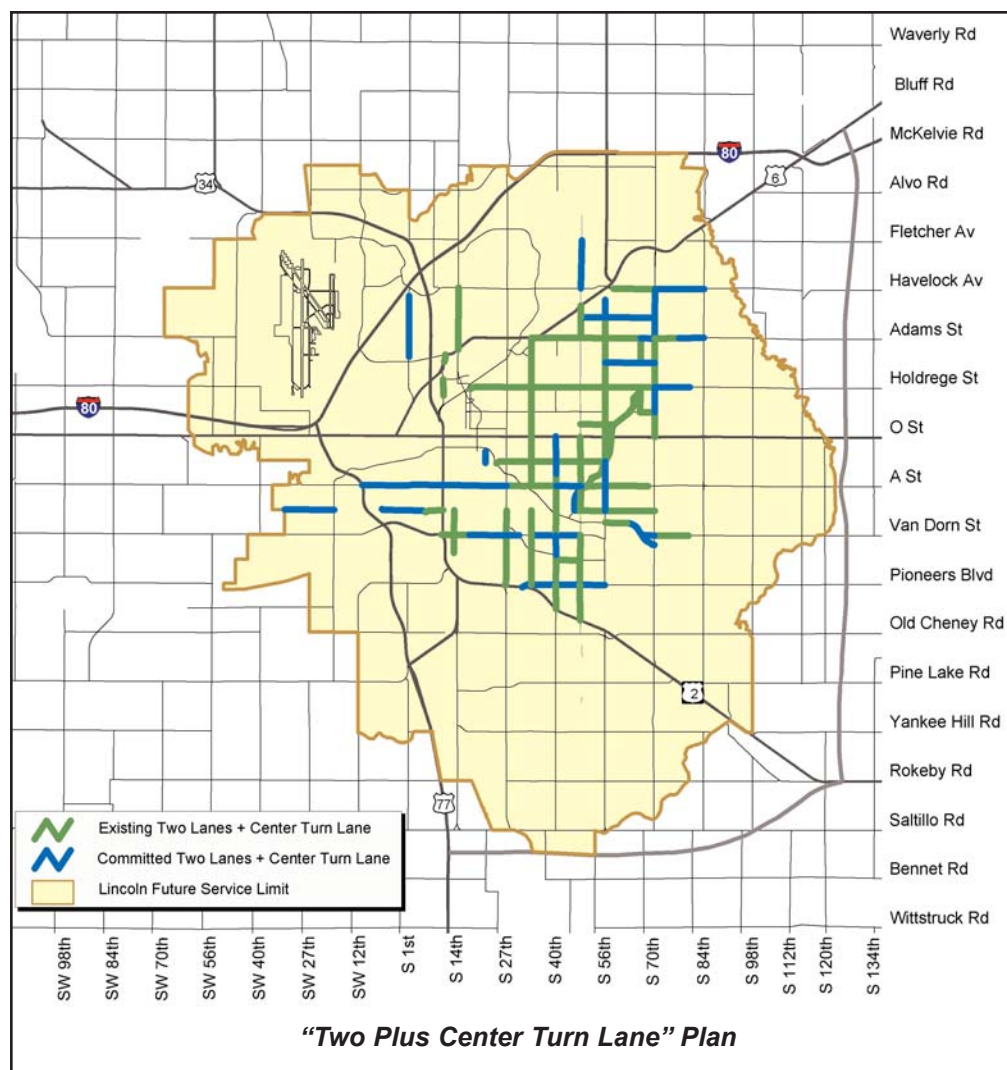
“TWO PLUS CENTER TURN LANE” PROGRAM

As the community looks for ways to minimize congestion on its streets, it is exploring means for completing street improvements that add capacity to the system while preserving the character and viability of the older neighborhoods. To achieve these objectives, the community is committed to an extensive program implementing the “two plus center turn lane” concept across broad areas of the existing city.

Under this concept, streets in many older areas are being improved with a street design that includes two through travel lanes and a single common center turn lane. This approach increases the street’s efficiency to move traffic and improve safety, while minimizing the impacts on the adjacent neighborhood. This design can usually be accommodated within the existing right of way. The Comprehensive Plan recognizes that occasionally small portions of right of way may need to be acquired in order to complete this program’s objectives.

While all arterial rehabilitation projects should be done to a width that can accommodate two lanes plus a center turn lane, actual striping may vary depending on the particular neighborhood circumstance.

This program is considered a priority and is assumed to be fully in place well before the end of the planning period.



ADDITIONAL URBAN AREA SYSTEM IMPROVEMENTS

In addition to those projects described above, numerous other streets and roadway projects are identified for construction or programming during the 25 year planning period.

These projects will generally be the responsibility of the City of Lincoln, although participation from other governmental entities will occur.

These include a wide range of projects for which the City has already committed funds, as well as longer term projects that do not have specifically earmarked funding.

Committed Projects

Fletcher Avenue, Cornhusker Hwy (US-6) to 84 th Street	2 lanes + turn lanes
N. 66 th St, "O" St to "Q" St, part of 'O' St. Project	4 lanes + turn lanes
South 84 th Street, Montello Rd. to Amber Hill Rd.	4 lanes + turn lanes
Pioneers Blvd., 70 th Street to 84 th Street	4 lanes + turn lanes
Old Cheney Road, 70 th St. to 84 th Street	4 lanes + turn lanes
Pine Lake Road, 40 th Street to Nebraska Hwy 2	4 lanes + turn lanes
Pine Lake Road, 84 th Street to 91 st St. to 98 th Street	4 lanes + turn lanes
South 91 st Street, Pine Lake Rd. to Nebraska Hwy 2	4 lanes + turn lanes
South 56 th Street, Old Cheney Rd. to Pine Lake Rd.	4 lanes + turn lanes
South 40 th Street, Pine Lake Rd. to Eagle Ridge Rd.	4 lanes + turn lanes
South 27 th Street, San Mateo Ln. to Yankee Hill Rd.	4 lanes + turn lanes
South 14 th Street, Old Cheney Rd. to Pine Lake Rd.	4 lanes + turn lanes
West Fletcher Ave., NW 12 th Street to NW 31 st Street	4 lanes + turn lanes
NW 27 th Street, West Fletcher Ave. to US-34 Interchange	2 lanes + turn lanes
North 10 th St., Sun Valley Blvd. To Military Rd.	4 lanes + turn lanes
Vine Street, 21 st Street to 26 th Street	4 lanes + turn lanes
Highway 77 and Capitol Parkway West	Interchange
"A" Street and 3 rd Street Overpass	Railroad Overpass
"O" Street, 3 rd Street to 9 th Street, Harris Overpass	Railroad Overpass
South 14 th St./Warlick Blvd./Old Cheney Road	Intersection

Proposed Projects

North 84 th Street, US-6 to "O" Street	6 lanes + turn lanes
North 98 th Street, US-6 to Adams Street	2 lanes + turn lanes
Fletcher Ave., 84 th Street to East Beltway	2 lanes + turn lanes
Havelock Ave., 84 th Street to 98 th Street	2 lanes + turn lanes
Adams Street, 84 th Street to 98 th Street	4 lanes + turn lanes
Adams Street, 98 th Street to East Beltway	2 lanes + turn lanes
98 th Street, Adams Street to Pine Lake Road	4 lanes + turn lanes
112 th Street, Holdrege to Van Dorn Street	4 lanes + turn lanes
112 th Street, Van Dorn Street to Pioneer Blvd	2 lanes + turn lanes
120 th Street, "O" Street to Van Dorn Street	2 lanes + turn lanes
Holdrege Street, 84 th Street to 98 th Street	4 lanes + turn lanes
Holdrege Street, 98 th Street to 112 th Street	2 lanes + turn lanes
"O" Street, 72 nd Street to 98 th Street	6 lanes + turn lanes

"A" Street, 84 th Street to 112 th Street	4 lanes + turn lanes
"A" Street, 112 th Street to 120 th Street	2 lanes + turn lanes
Normal Blvd., 56 th Street to Van Dorn Street	4 lanes + turn lanes
Van Dorn Street, Normal Blvd. to 80 th Street	4 lanes + turn lanes
Van Dorn Street, 84 th Street to 112 th Street	4 lanes + turn lanes
Van Dorn Street, 112 th Street to 120 th Street	2 lanes + turn lanes
Pioneers Blvd., 84 th Street to 112 th Street	4 lanes + turn lanes
Pioneers Blvd., 112 th Street to East Beltway	2 lanes + turn lanes
Old Cheney Road, 84 th Street to 98 th Street	4 lanes + turn lanes
Pine Lake Road, 98 th Street to East Beltway	2 lanes + turn lanes
Yankee Hill Road, South 14 th Street to Nebraska Hwy 2	4 lanes + turn lanes
South 84 th Street, Amber Hill Rd. to Yankee Hill Rd.	4 lanes + turn lanes
South 84 th Street, Yankee Hill Rd. to South Beltway	2 lanes + turn lanes
South 70 th Street, Pine Lake Rd. to South Beltway	4 lanes + turn lanes
South 56 th Street, Pine Lake Rd. to Yankee Hill Rd.	4 lanes + turn lanes
South 56 th Street, Yankee Hill Rd. to Saltillo Rd.	2 lanes + turn lanes
South 40 th Street, San Metro Lane to Saltillo Rd.	4 lanes + turn lanes
South 27 th Street, Yankee Hill Rd. to South Beltway	4 lanes + turn lanes
Rokeby Hill Road, 27 th Street to 40 th Street	4 lanes + turn lanes
Rokeby Hill Road, 40 th Street to 84 th Street	2 lanes + turn lanes
Saltillo Road, 70 th Street to 84 th Street	2 lanes + turn lanes
Saltillo Road, 27 th Street to 70 th Street	4 lanes + turn lanes
Saltillo Road, US-77 to 27 th Street	2 lanes + turn lanes
Yankee Hill Road, 1 st Street to SW 12 th Street	2 lanes + turn lanes
South 14 th Street, Garrett Ln., to Yankee Hill Road	4 lanes + turn lanes
South 1 st Street, West Denton Rd. to Yankee Hill Rd.	2 lanes + turn lanes
West Denton Road, US-77 to Coddington Rd.	4 lanes + turn lanes
Coddington Road, US-77 to West Denton Rd.	4 lanes + turn lanes
SW 12 th Street, Yankee Hill Rd. to Pioneers Blvd.	2 lanes + turn lanes
Folsom Road, Pioneers Blvd. to West Denton Rd.	4 lanes + turn lanes
Old Cheney Road, SW 12 th Street to Coddington Rd.	2 lanes + turn lanes
Old Cheney Road, Highway 77 to S.W. 12 th St.	2 lanes + turn lanes
West Pioneer Blvd., US-77 to Coddington Rd.	2 lanes + turn lanes
Folsom Road, Van Dorn Street to Pioneers Blvd.	2 lanes + turn lanes
West Van Dorn, Coddington Ave to SW 40 th St.	2 lanes + turn lanes
West Van Dorn, US-77 to Coddington Ave.	4 lanes + turn lanes
Nebraska Hwy 2, Van Dorn Street to 40 th Street	6 lanes + turn lanes
SW 40 th Street, Van Dorn Street to "O" Street	4 lanes /Overpass
West "A" Street, SW 40 th Street to Coddington Rd.	2 lanes + turn lanes
Hobson Yard Overpass, "O" St to W. Capital Pkwy	4 lanes/Overpass
NW 48 th Street, West "O" Street to US-34	4 lanes + turn lanes
NW 56 th Street, West "O" Street to West Adams Street	2 lanes + turn lanes
West Adams Street, NW 70 th Street to NW 48 th Street	4 lanes + turn lanes
North 1 st Street, Cornhusker Hwy to Superior Street	4 lanes + turn lanes
North 14 th Street, Superior Street. to Alvo Rd.	4 lanes + turn lanes
North 48 th Street, Holdrege Street to Leighton Ave.	4 lanes + turn lanes
North 48 th Street, Fremont Street to Doris Bair Rd.	4 lanes + turn lanes
NW 12 th Street, Highlands Blvd. to Alvo Rd.	4 lanes + turn lanes
Fletcher Ave., N. 14 th St. to N. 27 th St.	4 lanes + turn lanes
West Fletcher Ave., N.W. 27 th St. to N.W. 31 st St.	2 lanes + turn lanes

Alvo Road, NW 27 th Street to NW 12 th Street	2 lanes + turn lanes
Alvo Road, NW 12 th Street to Arbor Rd.	4 lanes + turn lanes
North 1 st Street, US-34 to Alvo Rd.	4 lanes + turn lanes
Humphrey Ave., N. 1 st St to N. 14 th St	2 lanes + turn lanes
Pennsylvania, N 1st to N 14th Street	2 lanes + turn lanes
Arbor Rd., Alvo Rd. to North 84 th Street	4 lanes + turn lanes
North 70 th Street, US-6 to Arbor Rd.	4 lanes + turn lanes
North 84 th Street, Arbor Rd. to US-6	4 lanes + turn lanes
US-34 and NW 12 th Street Overpass	Overpass
Cornhusker Hwy and North 14 th Street Interchange	Interchange
NW 70 th Street, W Adams to W Superior	2 lanes + turn lanes

PROPOSED STUDIES

The following areas are designated for study to determine if any facility improvements or road closings will be planned for these locations:

- Old Cheney Rd. and US-77: Overpass/Interchange Study
- US-77 and Pioneers Blvd.: Overpass/Interchange Study
- Wild Rose Lane Study
- North 44th at BNSFRR Closure
- Community-Wide Mobility Review of those groups whose transportation and mobility needs are not being met today. Early in the planning effort, groups comprising this portion of Lincoln and Lancaster County's population should be identified, including unique transportation and mobility characteristics. The study should consider at a minimum alternative approaches for providing transportation services to these groups, level of service characteristics and funding options. The study is to be completed within approximately two years from the adoption of this Plan.
- Beltways and Fringe Arterials - Explore options for promoting the maximum utilization by local traffic of the west, south, and east beltways, Interstate 80, and major urban fringe arterials in order to minimize the impact of future traffic growth on existing interior roadways.
- There should be a community-wide review identifying near- and long-term multi-modal transportation and mobility opportunities for Lincoln and Lancaster County. The study should consider alternative approaches to providing personal transportation services, possible characteristics of service levels, and funding options best serving our community objectives. The study should be completed within approximately two years of the adoption of this Plan.
- North 84th Street and Cornhusker Highway Study
- Roadway alternatives for connecting NW 70th and NW 48th Streets in the general location of West Superior Street
- Highway 2 Corridor Study from 9th Street to 66th Street
- 98th Street and Highway 2 Area Study

NEBRASKA HIGHWAY 2 CORRIDOR PRESERVATION

Nebraska Highway 2 is a major existing link on the urban street network. This diagonal roadway carries significant traffic volumes today and is projected to remain as the busiest thoroughfare along the city's southern tier.

As an existing State Highway, the public right-of-way along this corridor as it runs through Lincoln varies widely — from roughly 150 feet in width, up to nearly 350 feet. The Long Range Transportation Plan calls for widening Nebraska Highway 2 from four to six through lanes for an area from approximately Van Dorn Street on the west, through the intersection of South 56th /Old Cheney Road on the east.

Though no projects are shown in the Plan for the area, the existing corridor along Nebraska Highway 2 from about

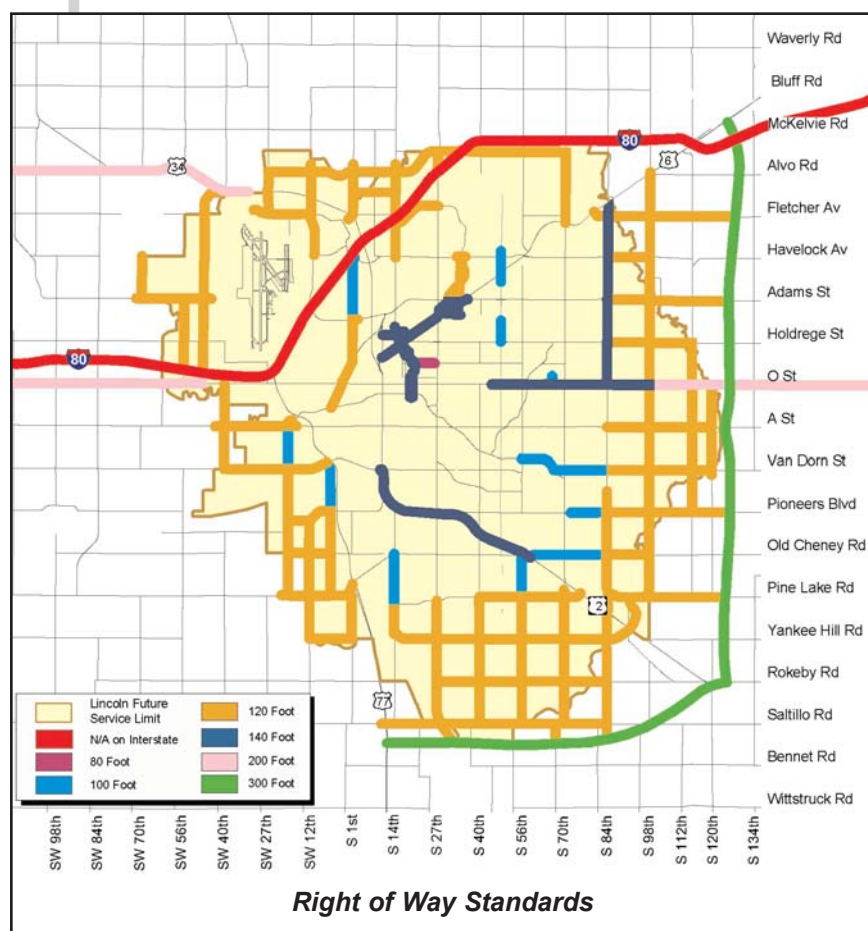
South 56th /Old Cheney Road to, and through, the location of the future South and East Beltway interchange on Highway 2 should be protected and preserved. The roadway within the corridor could be further improved or the corridor could serve as a multi-modal or multi-use area in the future.

Corridor preservation should include retention of all property within the State's present right of way area, denial of any additional access points to the roadway, elimination of existing access points should such opportunities arise, and the acquisition of additional right of way should it become available.

Serious conflicts currently exist between local commuter traffic and highway truck traffic. The South Beltway, when completed, will become the official truck route instead of Highway 2. This will present the opportunity to shift "through" highway truck traffic off Highway 2. When the South Beltway is opened, policies should be implemented to deter through truck traffic, preserve the right-of-way corridor, and facilitate local traffic use on Highway 2.

RIGHT-OF-WAY CONSIDERATIONS

Right-of-Way (ROW) widths for projects on the Year 2025 Street and Highway Improvements Plan are displayed on the Right-of-Way Standards Map. For existing and future arterial street projects appearing on this map, the right-of-way is generally 120 ft. in width for "2 Lanes + Center Turn Lane" (2+1) and "4 Lanes + Center Turn Lane" (4+1) projects, and 140 ft. in width for "6 Lanes + Center Turn Lane" (6+1) projects.



Projects occurring at the intersection of two arterial streets will warrant the further dedication of public right-of-way up to 130 ft. in width for the "2+1 at 120 ft. of ROW" and "4+1 at 120 ft. of ROW" projects, and 150 ft. in width for the "6+1 at 140 ft. of ROW" projects, for a distance extending two blocks from the centerline (approximately 700 ft.) of the intersection. The length of the intersection improvement should consider the existing and proposed land uses in the general area, traffic studies, and other pertinent information. Signalized intersections occurring along an arterial but not crossing another arterial may also fall under these ROW standards. The standard applies when land uses or other factors demonstrate the need for a wider right-of-way at the location.

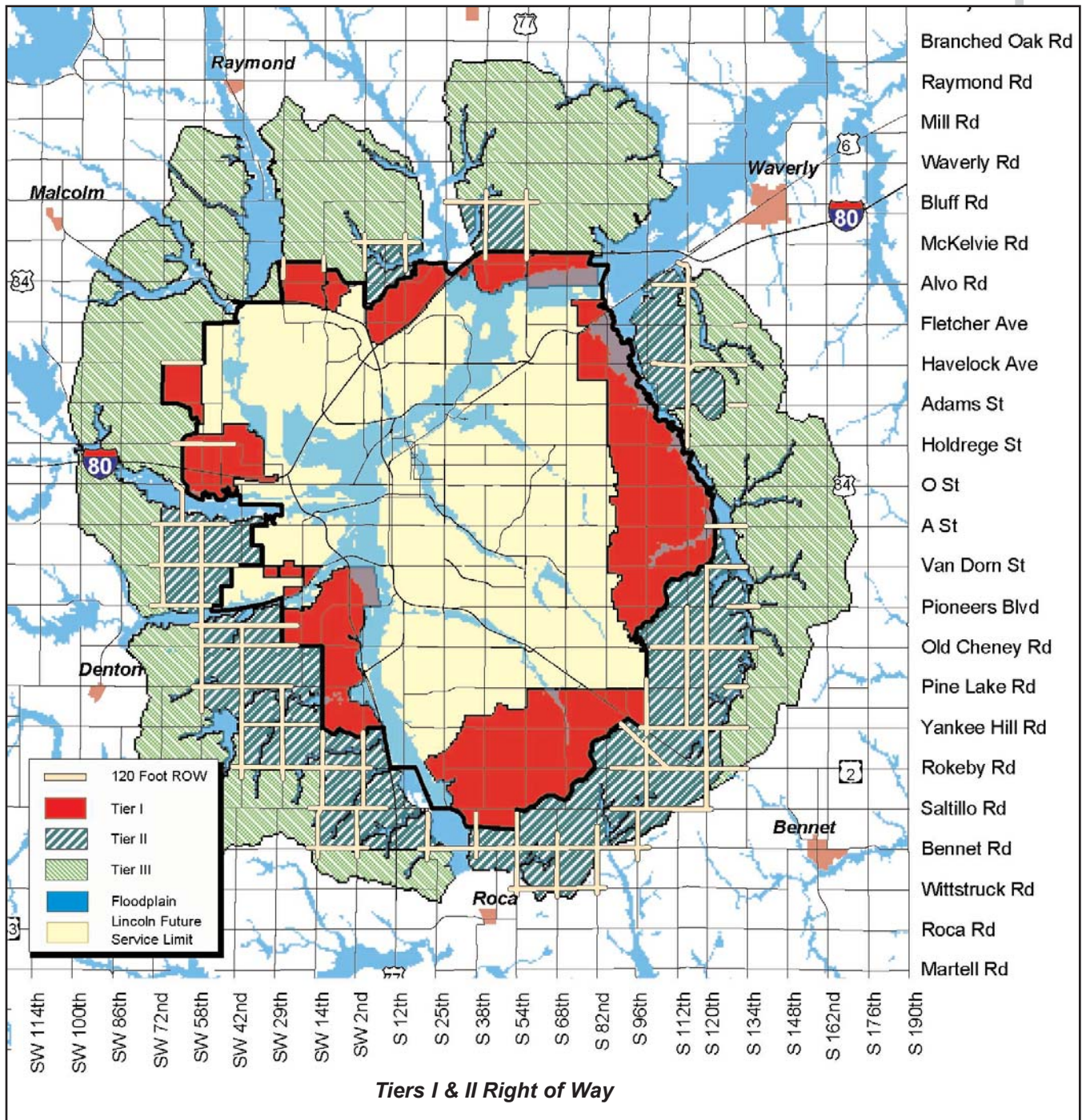
Within Lincoln's future growth Tiers I and II, a public right-of-way (ROW) width of 120 ft. for any potential future arterial street is considered the desired standard for this Plan. This is assumed to include — but is not necessarily limited to — existing section

and half-section line roads in these future growth Tiers. Any ROW obtained to extend or otherwise complete the section line road system in the future growth area should also be done at this desired standard.

There are instances — mostly but not always in newer areas — where trails are to be placed along an arterial street. This may occur in order to provide trail connections and to allow safe trail crossings at arterial streets. When a future trail or bike lane is designated along an arterial roadway then the corridor should be expanded by six addition-

al feet on the side where the trail will be located. The additional right-of-way should be obtained in advance of development.

Within the older established areas of the city, 66 foot rights-of-way are typical. This is normally adequate for a two lane or a two plus center turn lane street design, which is typically 33 feet wide (back of curb to back of curb). Where impacts from even minor widening would be significant, 31 feet (back of curb to back of curb) is an acceptable width.



COUNTY RURAL ROAD SYSTEM

Improvements to the rural road system will occur throughout the county. The amount of new pavement installed will depend upon the growth in traffic and population, and the fiscal resources available in the future to make the improvements.

The future County Paved Road Network is subject to extreme impacts from the more dense development (close to the City) to those roads experiencing slow to moderate growth (generally outside the three mile limit). These impacts and the resulting improvements vary from simply grading and graveling a road to a 4-lane facility.

Road improvements for the County are triggered based upon daily traffic volumes with the amount of traffic dictating the type and degree of improvement necessary.

The first level of traffic volume is in the range of 300 vehicles per day. At this level, the County acquires a minimum of 100 feet of right of way, with additional ROW acquisition standards applying as appropriate. Once the ROW is acquired, the County then grades and installs new drainage structures. The process of grading and graveling provides a road profile that is safer and wider. This profile can accommodate the next level of improvement, which would be pavement, provided the traffic counts continue to increase to the second level.

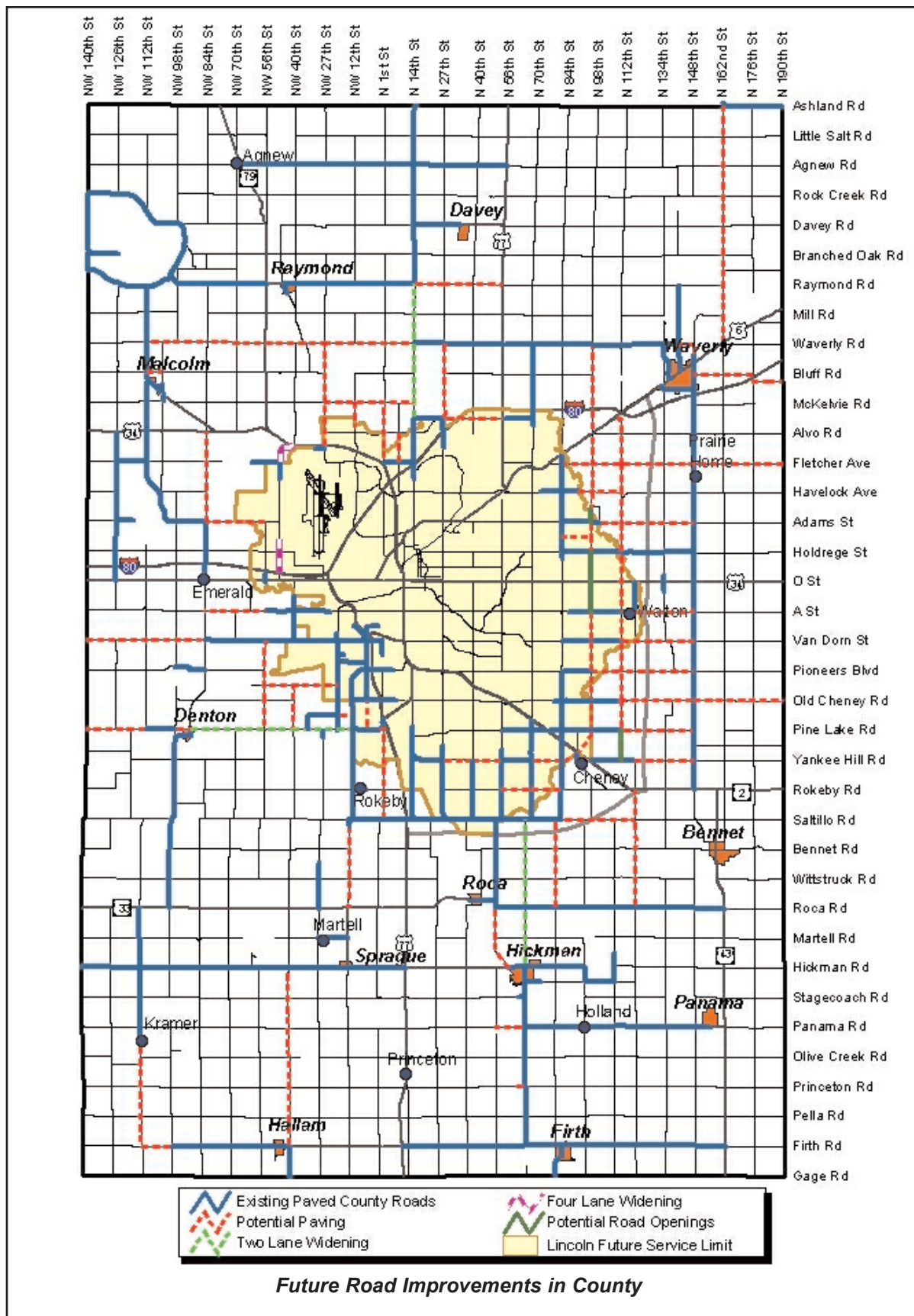
The acquisition of the wider right-of-way will also preserve the future corridors for the larger and more expansive street improvements that will come with the growth of Lincoln. The second level of improvement, which is pavement, is triggered at a traffic volume level of about 400 vehicles per day. This second level should remain as an effective transportation facility, with the exception of routine maintenance and pavement overlays, until the traffic volumes reach the level of 6,000 vehicles per day. This final level would be the target for looking at the need to install a four-lane divided facility.

The County Road Plan indicates some “road widenings” for those existing two lane paved roads that are no longer adequate for today’s traffic volumes. The County’s road improvement plan also includes new railroad viaducts planned near Hickman and Firth to address increasing competition at rail crossings from both rail and vehicular traffic. New roadway openings included in this Plan provide for continuity in the road system and better serve the adjacent areas. These segments include:

- 98th Street, A Street to “O” Street
- 98th Street, “O” Street to Holdrege Street
- 98th Street, Adams Street to Fremont Street
- 112th Street, Pine Lake Road to Yankee Hill Road

This brief explanation of County road improvements and the different levels of traffic volumes that trigger those improvements is an attempt to show that, generally, there exists a fairly orderly approach to project planning, programming and completion of the appropriate improvement.

This methodical approach does, however, become threatened when development precedes the improvements and becomes the controller of priorities and the limited fiscal resources available for road improvements. New development should locate along those facilities that have already received improvements capable of supporting such development. The Future County Road Improvements Plan shows county roads which are candidates for paving in the future.



FINANCIAL ANALYSIS

Financing sources for current and planned roads and streets are chronically inadequate.

Federal transportation planning regulations call for Long Range Transportation Plans to, “include a financial plan that demonstrates the consistency of proposed transportation investments...with already available and projected sources of revenues.”

This standard – some times referred to as the “fiscal constraint requirement” – ensures a balance between the costs of proposed transportation projects in the long range plan with likely funding sources. This standard minimizes the potential for infrastructure programs being adopted that are not likely to be implemented.

City of Lincoln Streets Plan Project Funding Through Year 2025 *Expressed in Millions of Dollars*

	<u>Projected Revenues</u>	<u>Millions of Dollars</u>
1	City Road Funds # (1.5 percent annual increase assumed)	\$685.0
2	Federal Highway Funds ## (no growth increase assumed)	100.0
3	Other State/Federal Aid ### (no growth increase assumed)	265.0
4	Other Funds ### (RTSD, Assessments) (no growth increase assumed)	<u>50.0</u>
	<i>Projected Total All Funds</i>	<i>\$1,100.0</i>
	<u>Projected Expenditures</u>	
5	Maintenance Activity*	\$190.0
6	Resurfacing/Rehabilitation** (Seven percent increase every 5 th year)	210.0
7	City/Fed/State Share of Major Projects***	<u>1,082.4</u>
	<i>Projected Total Expenditures</i>	<i>\$1,482.4</i>

Includes city wheel tax and city share of State Highway Allocation Funds. Does not include general funds.

City's share of Transportation Act.

Applied for funds.

* Includes street sweeping, snow removal, patching and other maintenance.

** Includes resurfacing, minor widening, and signals.

*** Includes construction, preliminary engineering, minor right-of-way acquisition, emergency, and safety activities. Involves use of City Wheel Tax, City Share of State Highway Allocation Funds, Federal Highway Funds, Railroad Transportation Safety District (RTSD) funds, and Other State/Federal Aid Funds. No project cost inflation is assumed. Funding for State projects is not included. Assumes 100 percent local funding for Antelope Valley Project. A 20 percent local funding and 80 Federal/State funding split would be anticipated for the South and East Beltways, Capitol Parkway West and Highway 77, and Sun Valley Boulevard from West O to Cornhusker.

As part of this comprehensive planning process, the Lincoln Public Works and Utilities Department completed a detailed review of the financial requirements needed to undertake the City's road improvements. These figures show a projected twenty-five year revenue stream of approximately \$1,100 million. The companion figure for the cost portion of the Plan is around \$1,482 million. While there is projected imbalance of around \$382 million over the entire planning period, it is expected that this difference will be accounted for through a combination of financing and capital improvement program-ming options.

These options involve a number of additional revenue sources (including local street impact fees currently being pursued by the City but as yet unapproved, and discretionary Federal and State funds likely requiring the submittal of project specific requests) and the staging of improvements allowing for the incremental construction of road improvements. The combination of these factors is projected to allow for the eventual construction of the roadway program as shown in this Plan.

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) integrate computers, electronic technology, sensors, telecommunication equipment, and management practices into the daily operations of a community's road and transit systems.

In part, ITS is about gathering real-time traffic information, allowing traffic engineers and transit managers to analyze the information, and then taking appropriate actions to make sure the drivers and bus riders get the most out of the total transportation system. For example, it's been estimated that advanced traffic surveillance and signal control systems alone could result in travel time savings of 8 to 25 percent. In short, ITS is intended to enhance a community's overall level of mobility – ensuring the safe, convenient, and efficient movement of people and goods.

FEDERAL ITS MANDATE AND LOCAL AGENCY ROLES

The Federal Transportation Efficiency Act (TEA-21) mandates local communities to consider and include ITS approaches in their transportation planning process. For purposes of the Lincoln Metropolitan Planning Organization (MPO), this document and the process followed in its development and implementation are designed to serve this requirement.

In guiding this task, it is the stated mission of the Lincoln MPO “to advance the development and application of Intelligent Transportation Systems across the region, which will increase highway safety, mobility, economic health and community development, while preserving the environment.” This statement of purpose is also intended to support the Lincoln area's contribution to the deployment of ITS technology by the State of Nebraska. The primary local players in planning Lincoln's ITS program are the City of Lincoln Public Works and Utilities Department (including the local transit operator, StarTran), the Lancaster County Engineer, and the Lincoln City-Lancaster County Planning Department. The relative roles of these agencies in the ITS planning process depend upon the existing and anticipated future demand for ITS user services within the urbanized area and the involvement and expertise of other local public and private operations.

The role of the local participants is to include:

- Maintaining an inventory of current ITS projects and applications
- Collecting and managing pertinent system data
- Serving as a clearinghouse for local ITS databases
- Conducting system performance monitoring and reporting
- Working with ITS stakeholders to provide a forum for their participation

What's “ITS?”

Intelligent Transportation Systems – or “ITS” – is a fancy way of saying we need to do a better job of using computers and modern communication technology in handling our roads and public transit operations.

ITS can be central computer systems using sensors in the streets that collect data on the flow of traffic. This information can then be used to immediately change the timing of traffic signals so the traffic moves more smoothly.

ITS can be ways of giving drivers up-to-date information about local traffic conditions. Where did an accident just occur? What streets are closed? What's the fastest way for me to drive to my destination? Some day such information will be provided through computer displays inside every automobile, or from websites on the Internet.

ITS can be message boards along roadways that help drivers manage their way around construction sites.

ITS can be computers in cars that will, should your car breakdown, automatically send out signal to an orbiting satellite indicating your location to a central emergency dispatcher.

ITS can be electronic devices letting a transit user know how soon the next bus will pass in front of their house.

- Participating in the updating of the Nebraska ITS Strategic Plan and Regional/Local ITS Architecture
- Coordinating ITS program funding
- Identifying potential public-private and public-public ITS relationships
- Establishing priorities for ITS project programming and funding within the Transportation Improvement Program (TIP) process
- Ensuring project conformity with regional (state) and national ITS architecture and standards

ITS DEPLOYMENT STRATEGY

The transportation system served by the Lincoln area's ITS program consists of a diverse set of users: vehicle drivers, pedestrians, bicyclists, multi-modal passengers, freight and passenger fleet operators, and other network participants. The potential solutions that can meet the needs of these users are similarly diverse. These solutions can be grouped into eight functional areas:

- Travel and Traffic Management
- Public Transportation Management
- Electronic Payment
- Commercial Vehicle Operations
- Emergency Management
- Advanced Vehicle Safety Systems
- Information Management
- Maintenance and Construction Operations

The Lincoln Public Works and Utilities Department currently manages a Travel and Traffic Management System that includes approximately 350 traffic signals, 85 miles of communication lines (twisted pair copper or fiber optic), 11 portable dynamic message signs, 7 traffic monitoring cameras (5 are candidates for wireless communication technology application), 6 pavement and weather monitoring sensors, and about 130 intersections with fire and railroad preemption units.

The further deployment of ITS technologies over the planning period includes the refinement of the Federally specified "ITS Integration Strategy" including the continued implementation of appropriate user services within priority corridors. This will be based upon user needs and demand. At a minimum, ITS implementation will likely involve additional traffic monitoring cameras, dynamic message signs, vehicle detection, new communication infrastructure, and other advanced traffic control systems. How the traveling public responds to these techniques will be used to determine future ITS projects and system enhancements.

BROADENING ITS WITHIN THE MPO TRANSPORTATION PLANNING PROCESS

A variety of approaches is to be used to ensure that ITS has a meaningful, beneficial, and permanent place in the MPO transportation planning process. This includes means for involving the community and seeks consensus for ITS project selection and development. Among the strategies to be pursued are:

- Creating an ITS Subcommittee of the MPO's Technical Committee
- Promoting ITS through presentations to other public agencies and business and community organizations
- Developing partnerships with the private sector to identify and implement ITS strategies
- Communicating with elected officials and others administrators to secure ITS commitments for cooperation, funding, and on-going support
- Reviewing non-ITS actions during the project development process to ensure their consistency with ITS objectives
- Maintaining a "customer oriented" philosophy as an integral part of the delivery of ITS services
- Incorporating ITS work tasks into job duties and functions

SYSTEMS MANAGEMENT STRATEGY

On June 9, 1998, Congress enacted the Transportation Equity Act for the 21st Century – also known as TEA-21. This legislation covers all Federal highway and transit systems for the six-year period from 1998 to 2003. It requires Transportation Management Areas (TMA) to design and implement a management system as part of the transportation planning process.

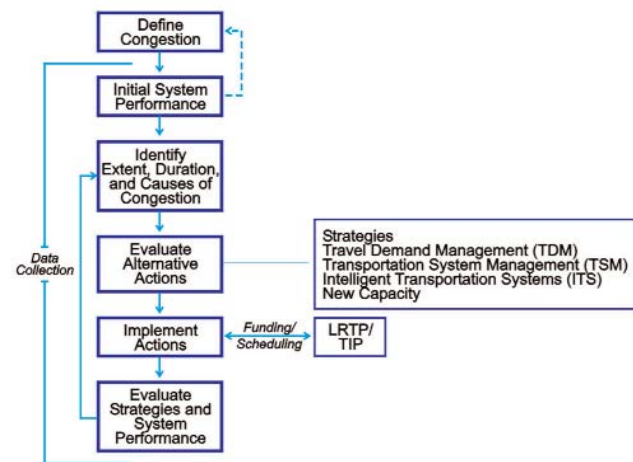
TRANSPORTATION MANAGEMENT AREAS

TEA-21 requires the U.S. Secretary of Transportation to designate any urbanized area with a population of over 200,000 people as a Transportation Management Area.

Although the Lincoln-Lancaster County region has yet to be designated as a TMA, this is likely to occur when the results of the year 2000 Census are finalized for this purpose. Based on discussions with representatives from FHWA and FTA, Lincoln's designation as a TMA is not likely to occur until the Spring of 2002 at the earliest. However, since it is evident that a TMA designation will occur within the time frame of the LRTP's implementation, the region has elected to include TMA requirements in the development of the LRTP.

One of these requirements calls for the creation of a "management system" as part of the transportation planning process. This management system is to provide for the "effective management of new and existing transportation facilities.....and operational management strategies." In practice, the management system should ultimately be a separate document that fulfills the requirements of the metropolitan planning regulations and management and monitoring system rules of TEA-21. As part of the LRTP document, a structure for establishing a management system in the future is included.

Management System Framework



TRANSPORTATION SYSTEM MANAGEMENT PROGRAM

Effectively managing the metropolitan area's transportation system requires an ongoing program of monitoring and data collection.

This Plan recognizes the efforts of the Congestion Management Task Force during the mid-1990's and its contribution to the street planning process. The work of this citizen group has already resulted in many changes to the City's roadway network. These changes include physical improvements to the street system (e.g., the expanded use of the "2 plus center turn lane" street design), the way data are collected and evaluated, and the means for measuring the performance of City's roadway network.

The technical foundation provided by the Congestion Management Task Force has served the community well. It has resulted in a better understanding of the area's transportation and travel needs.

One notable contribution has been the travel time analysis program put in place as a result of the Task Force's efforts. This program began on a modest scale with the collection of average travel speeds along a handful of corridors. Since then, the program has been expanded to include large portions of the urban area.

The expanded data collection program allows the community and transportation technicians to take a broader look at how Lincoln's street system is working. By examining changes in travel speed across large areas, system level improvements — rather than merely corridor level changes — can be assessed and then put in place. This system level approach to planning and engineering will form the basis for the next generation of evaluation procedures that further extend the work of the Congestion Management Task Force.

An annual transportation report should be prepared by the MPO Technical Committee as part of the Long Range Transportation Plan (LRTP) and the Comprehensive Plan Annual Review process and delivered to the Planning Commission concurrent with the Planning Director's report on the Comprehensive Plan and the CIP requests. This analysis should critique the transportation system's performance and identify priorities for future projects and studies. This analysis should use the adopted LRTP and Comprehensive Plan as its beginning point of review. This should be supplemented with monitoring information collected specifically for this evaluative process. Recommendations of potential projects and studies for the continuing planning and capital improvements programming processes [i.e., Annual Work Program, City and County Capital Improvements Programs (CIP), and Transportation Improvement Program (TIP)] should be made part of this report.

STREET SYSTEM STANDARDS

The standards used to evaluate the performance of the urban street system (a.k.a., level of service (LOS)) should include a range of factors. They should reflect the varying character of areas within the community, with standards acknowledging the differences between the older and newer parts of the City. The standards should be measurable, realistic, and easy to understand. Elements defining the level of service should address:

- Average speed (MPH) across an entire travel corridor
- Consistency of travel time
- System connectivity
- Safety (accidents)
- Visual interest
- Travel mode usage

Strategies: Street System Standards

- Develop an expanded set of street and transportation system standards for measuring "level of service" and network performance. These standards should build upon existing data collection and analysis practices, encompass a wide range of factors, and seek to broaden the perspective of how level of service and network performance is judged. This task should be given to the Intelligent Transportation Systems (ITS) Committee as one of their initial assignments.

NETWORK MONITORING AND ANALYSIS

In 1996, the Congestion Management Task Force initiated a process to gather average travel speed and delay time along selected streets. As more sophisticated methods have become available, the City of Lincoln has built upon and expanded this approach. The City now has in place an extensive, on-going data collection program. This program collects data on a regular basis for virtually the entire city street network. The following information should be collected during both peak and off-peak conditions:

- Travel time and average speed across entire corridors
- Travel delay at intersections
- Public transportation usage
- Vehicle occupancy
- Accident rates
- Pedestrian and bicycle volumes
- Overall traffic volumes
- Volume of truck traffic
- Turning counts at intersections
- Computer simulations

Strategies: Network Monitoring and Analysis

- Utilize the extensive array of available information and analysis technologies to evaluate the performance of the traffic and transportation system on an annual basis.
- Add new tools, data, and methods as they become available to aid in monitoring the transportation network's performance.

MAINTAINING LEVEL OF SERVICE

Congestion management should be flexible and ongoing. Appropriate public agencies should engage in continual evaluation and response to problems identified in the street system. Many management and operational actions will be undertaken at the departmental level to provide the quickest possible resolution. More serious problems may require a formal study process.

The MPO Technical Committee will serve as the lead in the annual transportation system evaluation process. This task will be founded upon the transportation and land use planning policies and programs in the adopted City-County Comprehensive Plan and LRTP. This effort should be based upon documented data sources and on the full array of level of service standards. If system performance changes in the system are noted as part of this process, a determination should be made as to whether they are temporary or chronic in nature.

Additional studies may be desirable to identify specific congestion mitigation strategies that appear most reasonable for the particular location. Where deficiencies are identified, the MPO Technical Committee will suggest strategies for congestion mitigation. Strategies may include:

- Intersection improvements
- Additional turn lanes
- Road improvements
- Signalization improvements
- Intelligent Transportation System (ITS) improvements
- Transportation Demand Management (TDM) techniques
- Alternative transportation modes

A broadly based community and agency participation process must be used in conducting any studies recommended through this process. This includes community participation in scope of work definition, data analysis, alternatives evaluation, and the selection of recommendations. The overall monitoring and evaluation process is considered an ongoing effort. It should seek the involvement of applicable stakeholders using a balanced and collaborative study approach. Any studies or recommendations for congestion mitigation must address as a minimum the impacts on the following:

- established neighborhoods
- homes and businesses
- pedestrian and bicycle safety
- public and private trees
- property values of the surrounding area
- access to adjacent properties
- cost of ROW and of purchasing properties
- traffic noise
- accident rates
- budgetary constraints

Strategy: Maintaining Level of Service

- Establish a process for completing the annual evaluation of the transportation system (to include all aspects of the transportation system). This step in the process should be fully described in applicable planing procedural manuals and associated management documents.

CONTINUING MONITORING AND PLANNING

Studies and improvements that require amendments to the Comprehensive Plan, Capital Improvements Program (CIP), and/or Transportation Improvement Program (TIP) will be brought forward as part of the annual transportation report to be prepared by the MPO Technical Committee as part of the Long Range Transportation Plan (LRTP) and Comprehensive Plan Annual Review process. This analysis will assess the performance of the transportation network and will assist in the identification and prioritization of projects for inclusion in the LRTP, CIP, and TIP.

Strategies: Continuing Monitoring and Planning

- Continue and expand the area's transportation system monitoring and planning program. This should involve the close integration of the planning and capital improvements programming processes.

RAILROADS

The city and county are served by both freight and passenger rail service. There are currently a number of projects in the planning, development or implementation stage which should reduce the rail/vehicular/pedestrian conflicts at street crossings. These projects include:

- West "A" Street overpass at 3rd Street
- Antelope Valley roadway, elevated intersection in the vicinity of N. 16th Street and State Fair Road
- North 33rd and Adams Street underpass south of Cornhusker Hwy
- Closure of the grade crossing at the 35th Street, Adams Street and Cornhusker Highway intersection
- Closure of BNSF rail crossing at 44th Street south of Cornhusker Hwy
- An underpass at the BNSF rail corridor near N. 29th St at Huntington Ave.
- SW 40th Street overpass, south of West "O" Street
- South 68th Street, south of Hickman
- Firth Road, east of South 82nd Street

The consolidation of tracks within a south transportation corridor also offers the potential of combining railroad activities with the single corridor.

AIRPORTS AND AIRFIELDS

The Lincoln Municipal Airport is the principal airport facility serving the Lincoln Metropolitan Area and Lancaster County. It is operated by the Lincoln Airport Authority. This facility provides a wide range of services and provides essential transportation links to national and international markets. The Airport is located in the northwest part of the City of Lincoln with surface access provided by Interstate and State highways. In the transportation planning process, the ground transportation issues were evaluated. The Plan will continue to provide for a high level of access to the Airport terminal and associated facilities.

The City of Lincoln's Airport Environs Noise District and Airport Zoning Regulations have been established to ensure the balance between the airport operations and the surrounding land uses. The regulations govern uses and structural characteristics compatible with the airport's operations and minimize negative impacts on surrounding residents. The Airport noise exposure and land use study on the compatibility of airport noise and land uses was completed in September, 2003. This program allows measures to be undertaken to provide an improved noise compatibility program to reduce noise and non-compatible land uses.

The Lincoln Airport Authority has assessed the existing and future noise impacts, noise contours for the Airport environment in a *Part 150 Airport Noise Compatible Planning Study*. The Comprehensive Plan will use information from the Part 150 Study to guide land use planning throughout the airport environs.

Strategies: Assess the Existing and Future Noise Impacts

- The Lincoln Airport F.A.R. Part 150 Noise Compatibility Study, completed in 2003 is an approved Subarea Plan of the Comprehensive Plan. Recommendations of the Study should be implemented over time.
- Maintain compatible land uses and zoning within the 60 DNL and 75 DNL noise contour line.

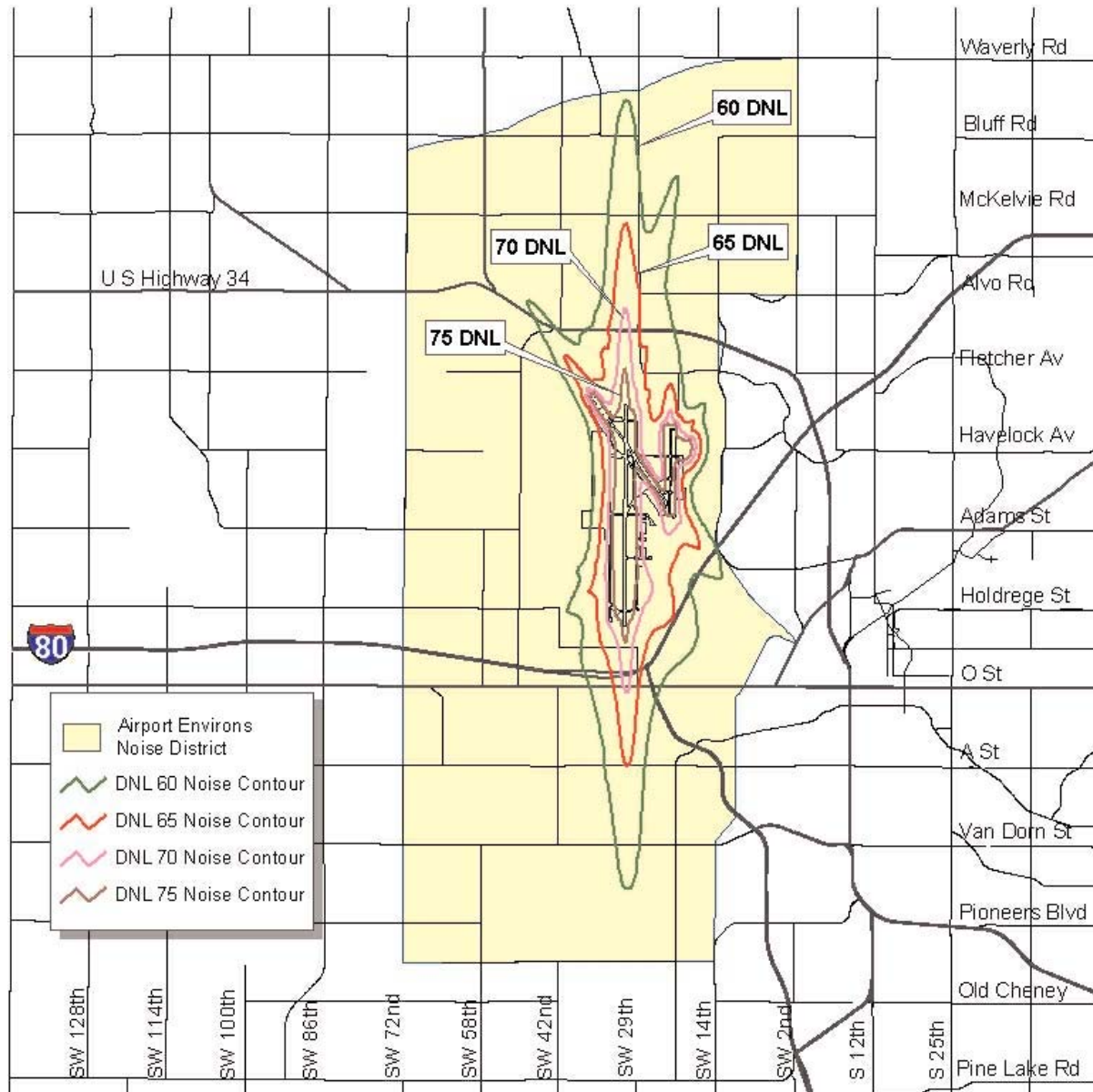
Smaller private airports and airfields are also located throughout the County. Airfields are limited by local ordinance to use by the residents of a single family home with not more than one plane. The Plan encourages a continued monitoring of private air facilities and discourages the location of airfields within close proximity to homes, schools, hospitals or other areas potentially sensitive to noise.

GOODS AND FREIGHT MOVEMENT

Air, rail and trucking are essential components in the local economy and play a key role in the Lincoln Metropolitan Area and Lancaster County transportation system. The Transportation Plan coordinates a multi-modal effort with and between the various modes and the street and highway component of the overall transportation system.

Air, rail and trucking industries are private entities outside the purview of the City of Lincoln and Lancaster County. Future transportation planning efforts should decrease the barriers that prevent the integration of freight interests into the transportation planning process.

The planning process should do more to encourage consideration of specific freight projects, including organizational and procedural issues.



Lincoln Municipal Airport Environs and Noise Contours

Planning Policy Strategies

- Work with Nebraska Department of Roads to take a more pro-active role in analyzing freight flows and proposing specific freight improvement projects for inclusion in State Transportation Improvement Plan (STIP) and local Transportation Improvement Plan (TIP), especially freight projects of Statewide and national significance.
- Work with State and MPO to examine freight flows and issues at the regional trade corridor or trade area scale.
- Establish an MPO freight advisory task force. MPO should consider establishing a freight advisory committee with representatives from all appropriate modes to ensure that projects proposed by the private sector are incorporated into the planning and programming process.
- Institute a “short-range” freight transportation improvement program, listing only small projects that can be completed within 18 months, to narrow the gap between the public and private sector planning horizons.

As a component of the transportation system, freight and goods movement impacts land use. The level of impact intensifies around high traffic corridors and facilities such as rail lines, interstates and highways, airports, pipelines and freight destination areas (i.e., industrial, office and commercial centers). Planning for these elements in order to minimize negative impacts and maximize economy and efficiency requires long range planning.

Land Use Policy Strategies

- Continue the review of existing policies concerning distances (i.e., buffers) between conflicting land uses.
- Encourage the assessment of risk concerning hazardous materials and impact on land uses.
- Enhance access to the external transportation connectors (e.g., Interstate system) in order to minimize impact on existing land uses.
- Enhance the internal transportation routes (e.g. State highway and City arterials) in order minimize impact on existing land uses.

Planning Data and Analytical Tools Strategies

The data and analytical tools to conduct effective local planning are not readily available to MPOs. There are several ways to address this issue:

- Coordinate the purchase of commodity flow data from private sources.
- Develop freight analytical and modeling tools.
- Revise and re-weight project evaluation criteria to give greater recognition of and emphasis to freight projects that advance local, State, regional, and national economic development and trade strategies.

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